

CLAIMS

What is claimed is:

1. A hollow fan blade detail half comprising:

a substrate having a root edge and an opposite tip spaced radially outward from the root, the substrate further including a leading edge opposite a trailing edge, the leading edge spaced chordwise from the trailing edge, the substrate including a first surface;

a plurality of first rib portions at least partially defined by a plurality of substantially parallel, elongated, continuous first cavities formed in the first surface of the substrate in a first region; and

a plurality of second rib portions at least partially defined by a plurality of substantially parallel, elongated, continuous second cavities formed in the first surface of the substrate in a second region different from the first region, wherein the first cavities are not parallel to the second cavities.

2. The hollow fan blade detail half of claim 1 wherein the plurality of first ribs portions do not intersect one another or any other rib portions.

3. The hollow fan blade detail half of claim 2 wherein the plurality of first rib portions each including a freestanding end defined by an adjacent one of the plurality of first cavities.

4. The hollow fan blade detail half of claim 1 wherein each of the first rib portions is contiguous with one of the second rib portions.

5. The hollow fan blade detail half of claim 4 wherein each of the first cavities is contiguous with one of the second cavities.

6. The hollow fan blade detail half of claim 5 wherein the first rib portions extend from the root edge in a radial direction toward the tip and wherein the second rib portions extend from the leading edge toward the trailing edge and toward the first rib portions.

7. The hollow fan blade detail half of claim 6 wherein the second rib portions are between the first rib portions and the tip.

8. The hollow fan blade detail half of claim 7 wherein the second rib portions curve toward the root edge as they extend from the leading edge toward the trailing edge.

9. The hollow fan blade detail half of claim 8 further including a plurality of third rib portions at least partially defined by a plurality of substantially parallel, elongated, continuous third cavities formed in the first surface of the substrate in a third region different from the first region and different from the second region, wherein the third cavities are not parallel to the second cavities or to the first cavities.

10. The hollow fan blade detail half of claim 9 wherein the third region is adjacent the tip and trailing edge.

11. The hollow fan blade detail half of claim 1 wherein the first rib portions extend substantially from the root edge to the tip.

12. The hollow fan blade detail half of claim 11 wherein the second rib portions extend from the leading edge toward the trailing edge.

13. The hollow fan blade detail half of claim 12 wherein the first rib portions and the second rib portions are each contiguous with a frame extending around at least the leading edge, trailing edge and the tip, and wherein the first rib portions and the second rib portions have substantially the same thickness as the frame.

14. A hollow fan blade including a pair of joined hollow fan blade detail halves according to claim 1 wherein ribs in one of the pair of hollow fan blade detail halves are joined to corresponding ribs in the other of the pair.

15. A gas turbine engine including a plurality of the hollow fan blades of claim 14.

16. A method for making a hollow fan blade detail half including the steps of:

a) forming a first set of substantially parallel continuous rib portions on a substrate in a first region adjacent a root edge of the substrate, wherein the first set of rib portions do not intersect one another or any other ribs; and

b) forming a second set of substantially parallel rib portions on the substrate in a second region different from the first region, wherein the second set of rib portions do not intersect one another or any other ribs, and wherein the first set of rib portions are not parallel to the second set of rib portions.

17. The method of claim 16 wherein the second region is adjacent a tip of the substrate.

18. The method of claim 16 wherein the second region is adjacent a leading edge of the substrate.

19. The method of claim 16 wherein said steps a) and b) further include the step of forming a first continuous cavity adjacent at least one of the first set of rib portions and extending continuously adjacent at least one of the second set of rib portions.

20. The method of claim 19 wherein said steps a) and b) further including the step of forming the first continuous cavity adjacent opposite sides of the at least one of the first set of rib portions and around a freestanding end of the at least one of the first set of rib portions.